(b) a substrate layer that supports the two-dimensional grating;

wherein, the grating is amine activated, aldehyde activated, or nickel activated, wherein when the biosensor is illuminated a resonant grating effect is produced on the reflected radiation spectrum, and wherein the depth and period of the two-dimensional grating are less than the wavelength of the resonant grating effect.

106. (New) A biosensor comprising a two-dimensional grating having a pattern of concentric rings, wherein the difference between an inside diameter and an outside diameter of each concentric ring is equal to about one-half of a grating period, wherein each successive ring has an inside diameter that is about one grating period greater than an inside diameter of a previous ring, wherein when the structure is illuminated with an illuminating light beam, a reflected radiation spectrum is produced that is independent of an illumination polarization angle of the illuminating light beam, and wherein the grating is amine activated, aldehyde activated, or nickel activated.

107. (New) A biosensor comprising an array of holes or posts arranged such that the holes or posts are centered on corners and in the center of hexagons, wherein the hexagons are arranged in a closely packed array, wherein when the structure is illuminated with an illuminating light beam, a reflected radiation spectrum is produced that is independent of an illumination polarization angle of the illuminating light beam, and wherein the grating is amine activated, aldehyde activated, or nickel activated.

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108. (New) A biosensor comprising:

(a) a first two-dimensional grating comprising a high refractive index material and having a top surface and a bottom surface; and

(b) a second two-dimensional grating comprising a high refractive index material and having a top surface and a bottom surface, wherein the top surface of the second two-dimensional grating is attached to the bottom surface of the first two-dimensional grating;

wherein the top surface of the first two-dimensional grating is amine activated, aldehyde activated, or nickel activated; wherein when the biosensor is illuminated two resonant grating effects are produced on the reflected radiation spectrum, and wherein the depth and period of both of the two-dimensional gratings are less than the wavelength of the resonant grating effects.

109. (New) A biosensor comprising:

(a) a first two-dimensional grating comprising a high refractive index material and having a top surface and a bottom surface;

(b) a substrate layer comprising a top surface and a bottom surface, wherein the top surface of the substrate supports the bottom surface of the first two-dimensional grating; and

(c) a second two-dimensional grating comprising a high refractive index material and having a top surface and a bottom surface, wherein the bottom surface of the second two-dimensional grating is attached to the bottom surface of the substrate;